

of hematemesis to which Naunyn had given 25 grams of bismuth subnitrate, and in which at the postmortem von Recklinghausen took out of the crater of the ulcer 20 of the 25 grams of bismuth.

The symptoms have the characteristics of poisoning by the heavy metals, viz., stomatitis, salivation, a violet, blue-gray or blackish line on the gums, nausea, vomiting, diarrhea and prostration.

After bismuth subnitrate, but no other bismuth salt, another form of poisoning has occurred, namely, nitrite poisoning, this being due to the formation of nitrous acid. Most of these cases have resulted from the ingestion of large amounts of bismuth subnitrate for roentgen-ray work; but there are a few that have occurred from the medicinal use of the salt. Böhme, for example, reported that after giving an eighteen months marasmic infant several grams by mouth and two days later a similar dose by rectum, the child three hours after the last dose suddenly developed abdominal pain, diarrhea, cyanosis, and dyspnea, and died in half an hour. The blood and pericardial fluid gave tests for nitrous acid, and the blood for methemoglobin. Böhme found that when he mixed bismuth subnitrate with feces, nitrous acid was formed, and that when he placed this mixture in a rabbit's intestine, the urine showed nitrites. In one fatal case E. Meyer demonstrated nitrites in the urine, blood and pericardial fluid.

**SILVER NITRATE.** Before leaving the subject of drugs I wish to put on record a case of argyria that I have just found on my service, with a universal metallic slaty look to the skin, which came on after taking only  $\frac{1}{4}$  grain of silver nitrate three times a day for two months.

I also this year had an autopsy on a similar case of argyria, in which the viscera were much discolored with silver deposits. This resulted from the application only once daily of a caustic silver stick to the mouth of a fistula. The period of application I do not know. This may point a moral for men who use silver nitrate in gastro-enterology.

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#### A ROENTGEN RAY SIGN OF PERINEPHRITIC ABSCESS.<sup>1</sup>

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DURING the study of Case II in this report a curious fluoroscopic finding was observed which directly led to a diagnosis of perinephritic abscess, and which was confirmed by operation. The same

<sup>1</sup> Read before the Association of American Physicians, Atlantic City, N. J., June 18, 1919.

fluoroscopic sign was noted in Case I, but in this particular case the diagnosis was certain before the fluoroscopic finding was seen, hence no particular attention was paid to it except to note its presence. So far as either of us can discover this roentgen-ray finding has not been previously reported, though, of course, in the mass of literature a notice of it may easily have been overlooked.

CASE I.—F. H. W., male, aged thirty years, was admitted to the University Hospital, under the care of Dr. J. B. Carnett, October 2, 1916, with a diagnosis of renal calculus on the left side. The diagnosis was confirmed by roentgen rays and the stones removed by Dr. Carnett. The patient did well until October 10, when he developed fever of a mild type. On October 25 the fever became septic in type and continued until December 13, when a fluoroscopic examination showed fluid at the seat of the operation. This fluid was demonstrated while the patient was standing in the fluoroscope. The shoulders of the patient were grasped and the patient's body moved quickly two or three times from side to side. Watching the fluoroscopic picture showed a distinct wave in the supposed fluid. This observation was made by Dr. Pancoast. He offered the explanation that a collection of fluid was around the kidney, which showed the wave when agitated. The renal region was opened and a huge sac of pus demonstrated within the capsule of the kidney.

No other opportunity was given to discover whether this sign was an accidental one or whether it was common in subdiaphragmatic collections about the kidney on the left side until Case II was seen.

CASE II.—A. F., male, aged forty-six years, was seen with Dr. Shelly, of Ambler, Pa., May 14, 1918. The patient had been sick three weeks, was tired and chilly, and had fever of a septic type. He had pain referred to the base of the left lung. A paracentesis had been performed by Dr. Shelly, who had removed 3 or 4 c.c. of clear fluid with a needle from the base of the left chest. When seen by the writer there was pain and tenderness over the region of the left kidney, but nothing else could be detected. A needle was inserted in the left chest, but the tap was dry.

In the history which was obtained there were symptoms indicative of what was thought to be a peptic ulcer; a tentative diagnosis was made of subdiaphragmatic abscess from a perforating ulcer. He was sent to the University Hospital for a roentgen examination, but this was negative, and he returned the same day.

In a week after this his symptoms still continued; he was again sent to the hospital for careful observation. The symptoms were an irregular fever of septic type, with persistent but slight pain over the region of the left kidney. A roentgen-ray examination, with the patient lying on his back, showed the diaphragm to have the normal arch, and nothing particular could be seen. A plate taken, however, showed a beautiful picture of gall-stones, but did not reveal the presence of liquid. Remembering the experience with

Case I, the patient was placed upright in the fluoroscope and the first observation was that the left leaf of the diaphragm was flat and was immobile, and had lost its normal arched position.

The patient's shoulders and body were then moved quickly from side to side, and there was distinctly seen the same wave above the renal region which was observed in Case I. This observation was confirmed by both authors and by several other observers.

In view of these facts an exploration was advised in the left lumbar region, with the belief that all of the symptoms were due to a collection of pus in or around the left kidney.

Dr. A. C. Wood, who performed the operation, hesitated to explore the region because the local physical signs of a collection in that region were so slight, but urged that the gall-stones be removed and the lesser peritoneal cavity be explored. This, of course, was a rational opinion, but because of the curious fluoroscopic sign he was persuaded to open the kidney region. The incision showed the left kidney tightly bound down by its lower half. But surrounding the upper pole an abscess containing approximately 200 to 300 c.c. of pus was found.

The patient made an uninterrupted recovery and was discharged June 25.

On October 30 the patient developed marked symptoms of gall-bladder disease. He was again roentgenographed and the first plates showing gall-stones were confirmed. The gall-bladder was removed and showed thirteen stones. There was no evidence of previous or present collection of pus in the lesser peritoneal cavity. Today the patient is well.

This fluoroscopic sign is reported, because we believe it will be of value in certain obscure cases of fever, with suspicious signs about the left kidney, but which signs are not certain enough to warrant an exploration.

In Case I it will be noted the pus was within the capsule of the kidney; no note was made as to the shape of the diaphragm. In Case II the diaphragm had an entirely normal appearance when the patient was lying down and became flattened when the patient was upright. This phenomenon is not clear to us. We have thought of many explanations, but none seem satisfactory. It will be noted also that the amount of fluid was not large, which makes the sign of value in early cases. This second patient was soon relieved, having been in the hospital only about four weeks after operation.

Of necessity, pus about the right kidney will not be expected to give this sign, as the liver intervenes between the kidney and the diaphragm. So far as we know no such observations of collections of pus between the liver and the diaphragm have been made.

It is confidently hoped that other observers will search for the presence of a wave under the diaphragm in cases of subdiaphragmatic or perinephric abscess when the body is quickly moved from side to side.